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COOLING SYSTEM AND METHOD FOR A HYBRID ELECTRIC VEHICLE

Abstract of Disclosure

A system and method to meet the cooling needs of a hybrid electric vehicle's motor, such as an integrated-starter-generator, using a transmission cooling loop that flows through a specialized stator housing of the motor. The system has a cooling loop with a heat exchanger and conduits to connect the stator housing of the motor, transmission, and heat exchanger. Coolant flows through the cooling loop through the action of either a mechanical transmission pump or an auxiliary pump or both. A controller can receive and process input from at least one vehicle sensor, and command the auxiliary pump to operate when the processed input of at least one vehicle sensor exceeds a pre-selected threshold. In an alternate embodiment of the present invention, the cooling loop also has bypass conduits and independently controllable bypass valves having actuators. The stator housing can overlap or be adjacent to a transmission housing.